Bulletin No. 78

NIAGARA

Machines and Tools For Sheet Metal Working

SNIPS — HAND TOOLS
ROOFING TOOLS
STAKES

NIAGARA MACHINE & TOOL WORKS
Established 1879
BUFFALO, N. Y., U. S. A.

Printed in U. S. A.

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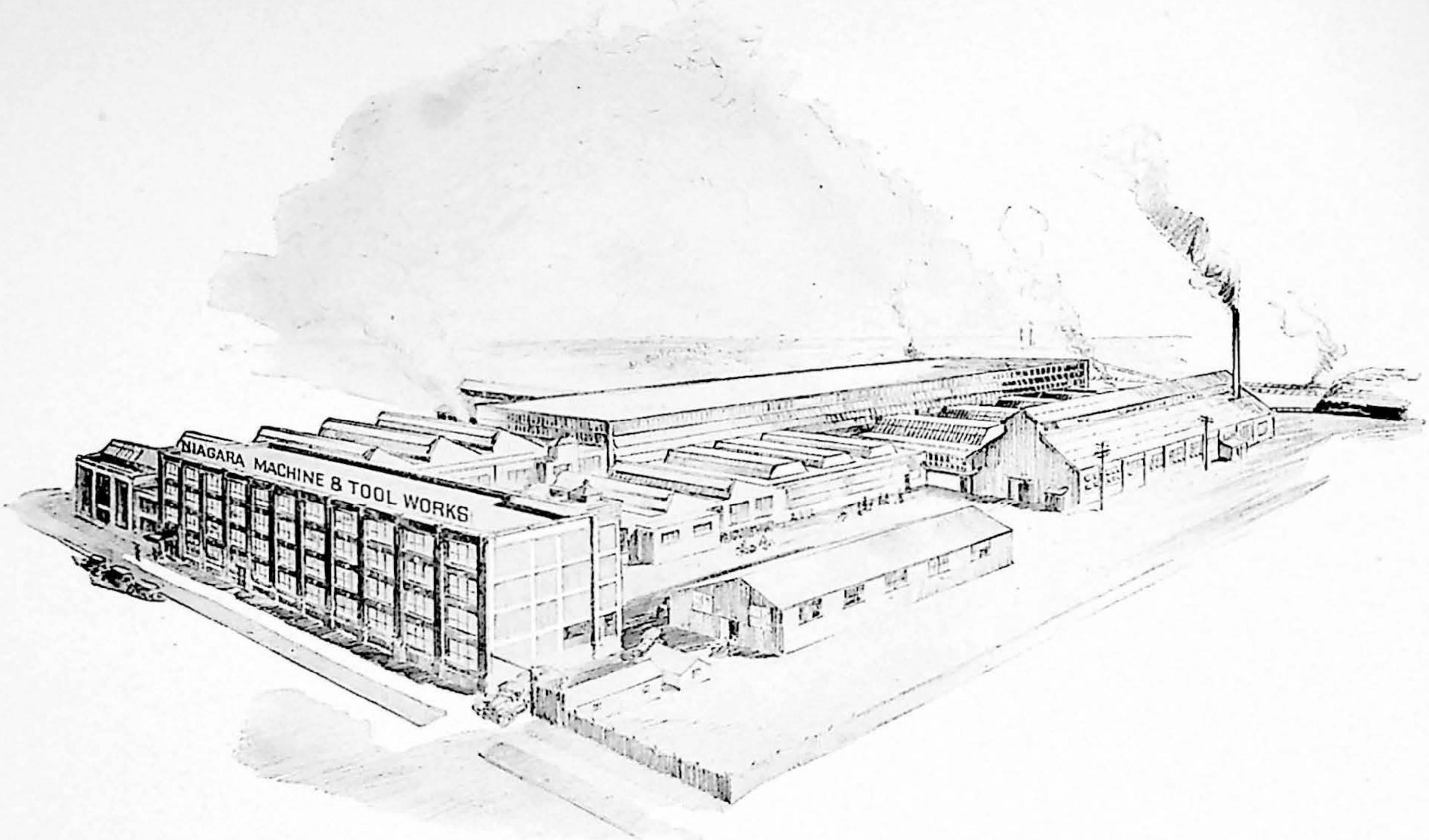


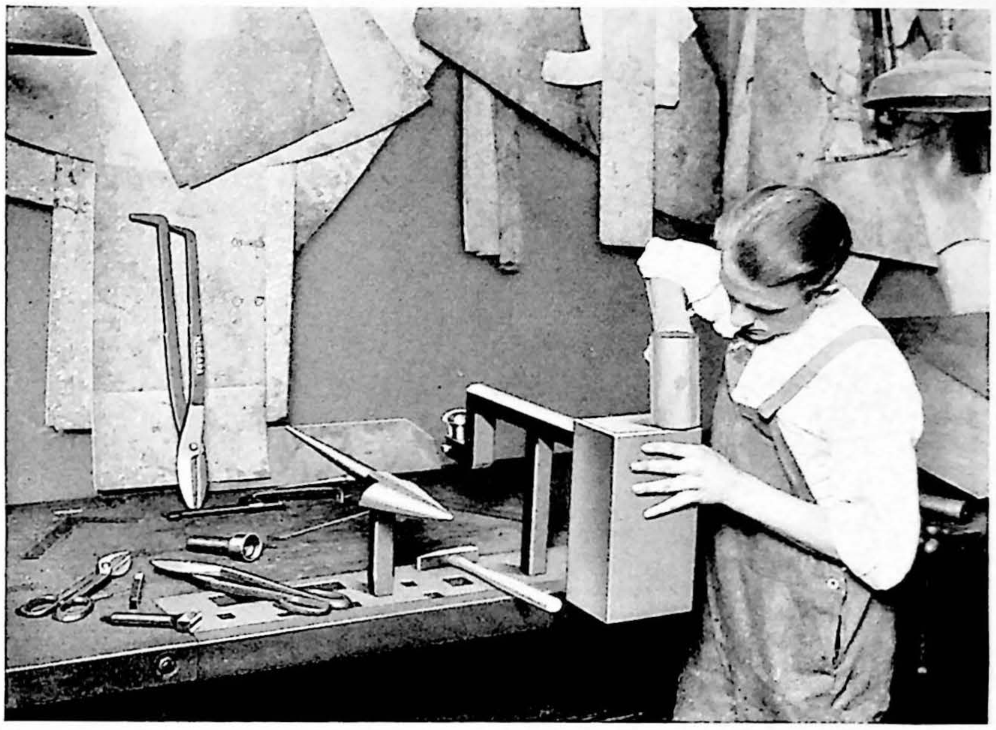
QUALITY, workmanship and the best materials combined with the most practical designs, have given Niagara Machines and Tools the acceptance and approval of the Sheet Metal and Allied Industries.

Our Engineering Staff is at your disposal.

Niagara Machine & Tool Works
Established 1879
BUFFALO, N. Y.

NIAGARA

SNIPS — HAND TOOLS
ROOFING TOOLS — STAKES



Hand Tools will always be a necessity to the sheet metal worker. The quantity or nature of certain operations and the places where such operations must be performed often preclude the use of machines.

Since Hand Tools employ the strength of the operator and must not impair his endurance, it is imperative that these tools be selected with the greatest care. Close attention should be given to the design, weight and construction. Proportions and leverage of handles should conserve operating effort. Handle shapes should cause no discomfort. The material of which the tool is made should be of good quality and wherever necessary, the steel should be tempered to the proper degree of hardness or toughness. The workmanship and finish should be high grade. Niagara Hand Tools evidence consideration of all these qualifications. Only the best materials are used. Niagara workmen are expert and the facilities employed in heat treating are the most modern and reliable.

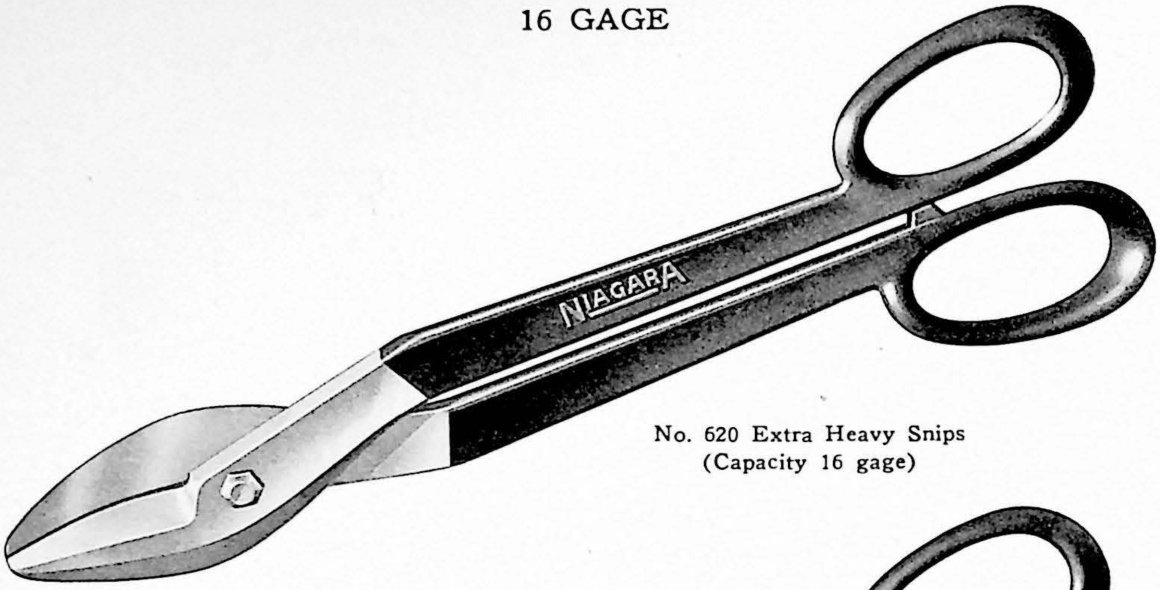
Snips are universal and indispensable hand cutting tools. Straight or curved cuts, notching and slitting are every day uses. Many sheet metal workers are now using Niagara Snips that have been in daily service for periods up to twenty-five years, a remarkable demonstration of Niagara quality.

Formerly all Folding, Seaming and Forming operations on sheet metal were accomplished by the skillful use of the mallet and stakes. Many of the peculiarly shaped stakes now rarely used have been dropped but the ones still in extensive use are retained. Niagara Stakes have just the right design, good material and excellent workmanship necessary to satisfy the exacting desires of the expert sheet metal worker.

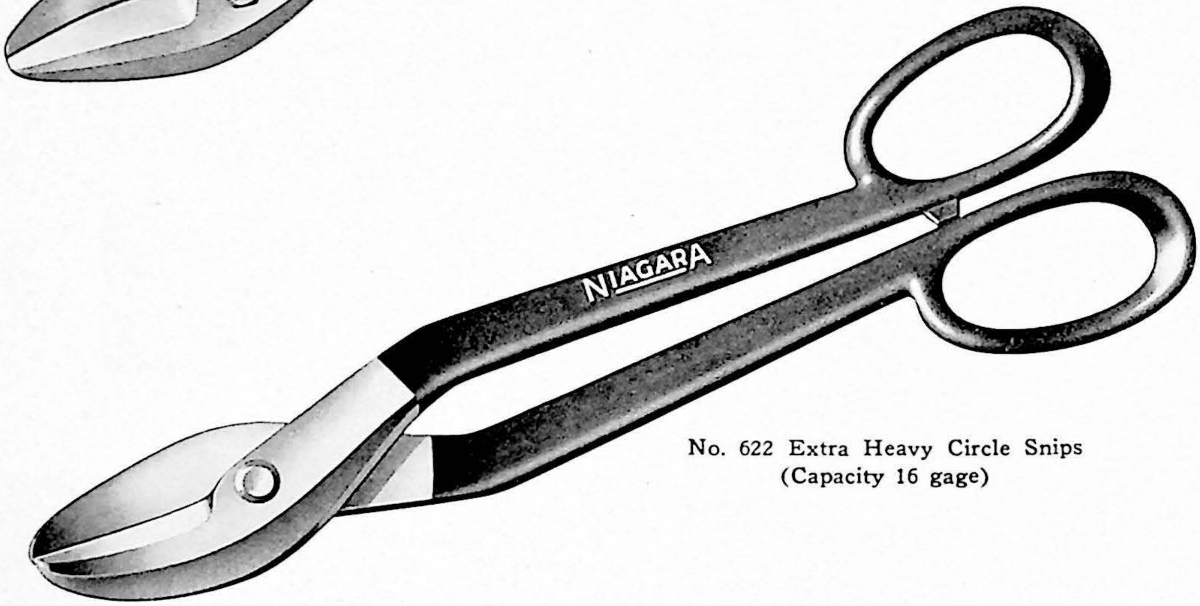
Roofers whose work is aloft in often precarious positions, should have tools of utmost reliability, strength and lightness, proportioned to do the work with minimum exertion. The ground equipment, folders, crosslock seamers, etc. which prepare the material for the roof must produce accurate work that may be readily put in place. Niagara Roofing Tools embody all these features. They are absolutely dependable.

EXTRA HEAVY SNIPS

16 GAGE



No. 620 Extra Heavy Snips
(Capacity 16 gage)



No. 622 Extra Heavy Circle Snips
(Capacity 16 gage)

Niagara Extra Heavy Snips cut number 16 gage steel with ordinary effort. Furnished with straight jaws for straight cuts or curved jaws for curved or irregular cutting.

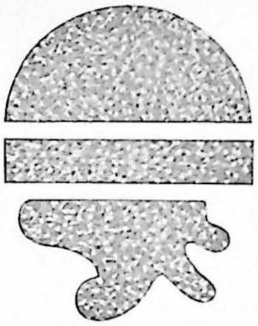
High carbon tool steel inlays of extraordinary cutting quality are welded to the drop forged steel jaws and correctly hardened for durability and ease of cutting. Special attention is given to grinding and fitting. Jaws are heavy, short and powerful, the handles long for maximum leverage and the handle bows shaped to fit the hand. A powerful grip can be exerted without discomfort.

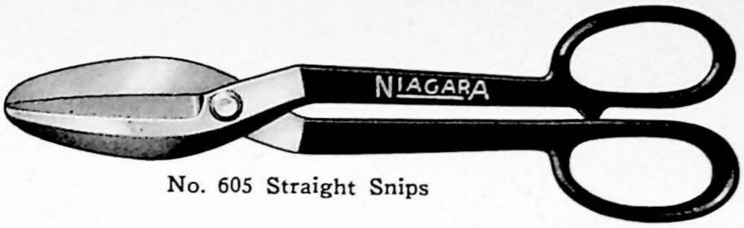
No set of tools is complete without a pair of Niagara Extra Heavy Snips.

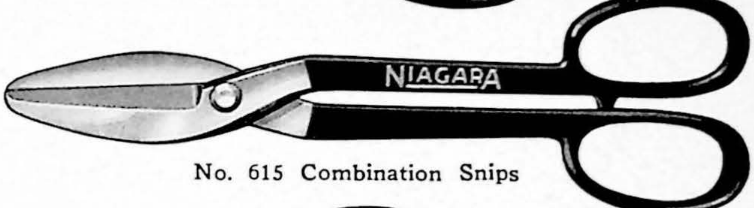
NIAGARA EXTRA HEAVY SNIPS

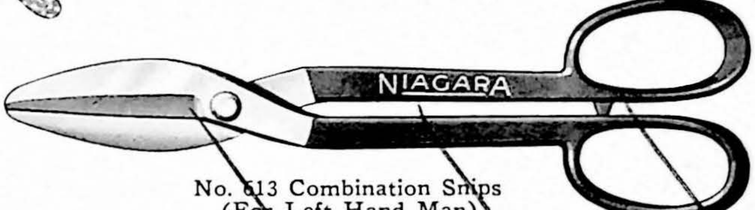
Number	620	622
Type	Straight	Curved
Old number	5	05
Capacity, mild steel . . . Gage No.	16	16
Length of cut . . . inches	2½	2½
Length overall . . . inches	16	16
Net weight . . . pounds	4	4
Codeword	Termu	Terub

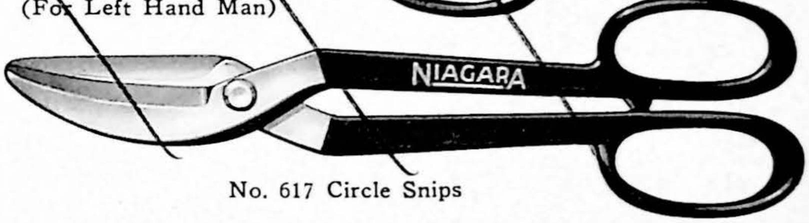
STRAIGHT SNIPS—COMBINATION SNIPS




No. 605 Straight Snips


No. 615 Combination Snips


~~No. 613 Combination Snips~~
~~(For Left Hand Man)~~


~~No. 617 Circle Snips~~

Niagara Snips keep a keen cutting edge, do not require frequent regrinding and have long life. The keen edge that cuts so easily is an extra quality inlay of very high carbon tool steel, welded to the drop forged jaw. This steel is hardened and drawn with that precision obtainable only with modern controlled furnaces. Common snips lack the tool steel inlay.

Niagara Snips have correct strength and leverage. Handle bows are shaped for comfort. Jaws are strong and of proper contour for cutting and for notching at the tip. The fitting of the jaws is the work of experts. There is a smooth positive action in opening and closing Niagara snips that the discriminating buyer at once appreciates.

Straight Snips have straight jaws for straight line cutting. To maintain strength, the tips are not unduly pointed.

Combination Snips have straight jaws for straight cuts but the inner faces of the jaws are sloped for cutting curves and irregular outlines.

Circle Snips have curved jaws for ~~curved cutting~~ only. Inner ~~faces of jaws are~~ sloped the same as ~~Combination~~ Snips to facilitate cutting ~~various~~ radii.

All above are for right handed operator, and cut on left side of upper jaw.

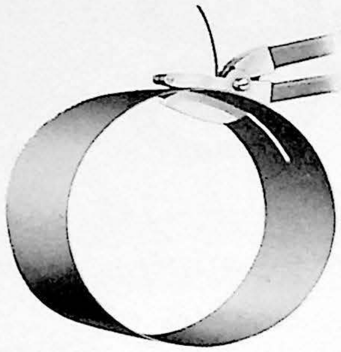
At extra charge No. 18 Combination Snips can be furnished with cutting edge on right side of upper jaw, for right or left handed man.

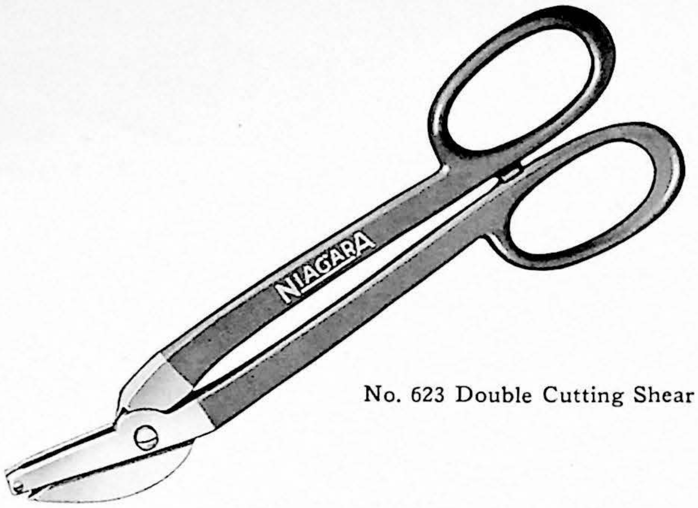
NIAGARA STRAIGHT AND COMBINATION SNIPS

Number	**605**	**609**	**614**	**615**	**616**	~~**613**~~	~~**617**~~	~~**618**~~	~~**619**~~
Old number	6½	10	17	18	19	~~13~~	~~017~~	~~018~~	~~019~~
Type	Straight		Combination				~~Circle~~		
*Normal capacity, mild steel.......Gage No.	24	28	24	26	28	~~26~~	~~24~~	~~26~~	~~28~~
Length of cut.......inches	4	2½	3½	3¼	2¾	~~3¼~~	~~3½~~	~~3¼~~	~~2¾~~
Length overall.......inches	15	11	14	13	12	~~13~~	~~14~~	~~13~~	~~12~~
Net weight.......pounds	3½	1¼	2½	2¼	1¾	~~2¼~~	~~2½~~	~~2¼~~	~~1¾~~
Codeword	Teolo	Tepsi	Teraz	Terco	Terds	~~Tezyi~~	~~Terex~~	~~Terfy~~	~~Terid~~

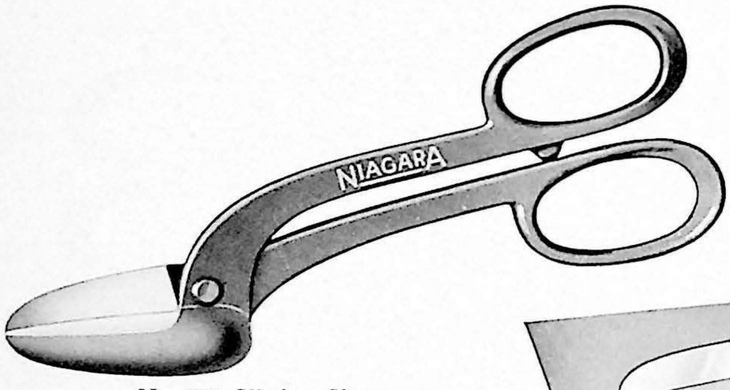
*Will cut heavier gages when necessary.

DOUBLE CUTTING SHEAR—SLITTING SHEAR

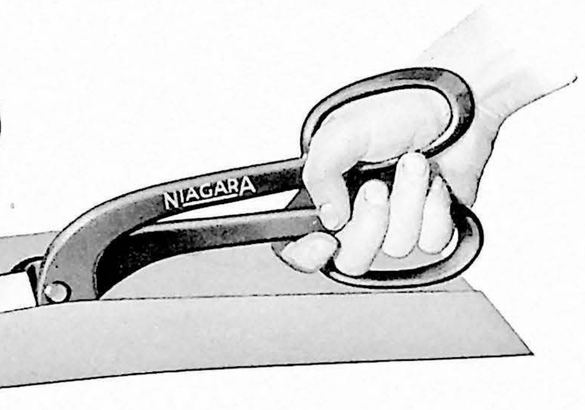




No. 623 Double Cutting Shear



No. 621 Slitting Shear



Double Cutting Shears are designed for cutting to length sheet metal cylinders such as stove pipe, or for cutting holes in sheet metal.

The pointed lower blade is pushed through the metal to start the cut. A strip is cut out between the two pieces, leaving both edges smooth and undistorted.

Lower blade is of tool steel, with parallel cutting edges. These edges operate against two steel laid cutting edges in the slotted upper jaw. An adjusting screw at the outer end of upper jaw, maintains proper contact between cutting edges of upper and lower blades. The handles are drop forged.

Slitting Shears are particularly designed for splitting long sheets without distortion. The lower jaw is offset to allow the metal to pass. The edges of the cut remain in close alignment and the two handle bows are above the sheet well away from the severed edges. The snip is shaped to afford excellent visibility of a scribed line.

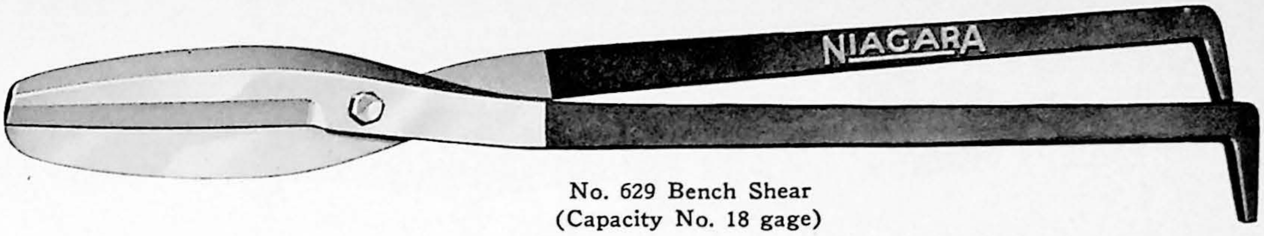
The jaws are drop forged, faced with high grade hardened tool steel.

NIAGARA DOUBLE CUTTING AND SLITTING SHEAR

Number	623	621
Type	Double Cutting	Slitting
*Normal capacity, mild steel . . . Gage No.	24	24
Length of cut . . . inches	2	3
Length overall . . . inches	13½	13½
Net weight . . . ounces	37	44
Codeword	Terrg	Teros

*Will cut heavier gages when necessary.

BENCH SHEARS—ELBOW BENCH SHEARS



No. 629 Bench Shear
(Capacity No. 18 gage)

Bench Shears are heavy duty sheet metal cutting tools for straight line work. The cutting length of jaws is greater than on snips. Handles are longer to give greater leverage.

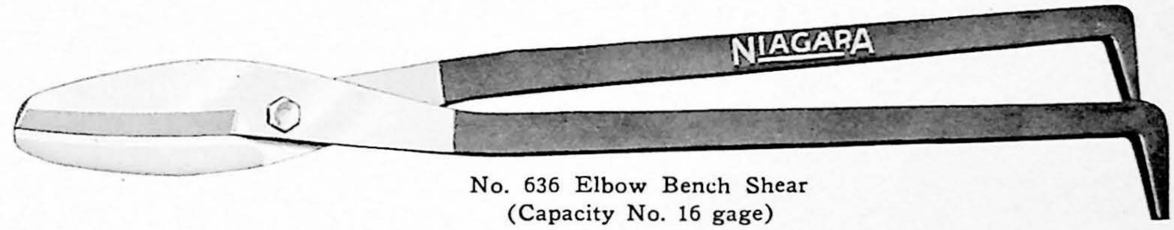
Jaws and handles are of forged steel. Cutting edges of tool steel are welded to the jaws, hardened and ground.

Bench shears are carefully fitted and bearing surfaces ground to keep cutting edges in correct relationship without binding or undue friction. Handles are smooth with rounded corners. The shank on the lower handle can be held in a bench plate (page 9). The upper shank limits the downward motion of the handle and provides clearance for the fingers when in closed position.

Bench Shears have the cutting edge on right side of upper jaw and can be used by right or left handed operator.

NIAGARA BENCH SHEARS

Number	627	628	629	630	632	633	634
Old number	00	0	1	2	4	5	6
Capacity, mild steel . . . Gage No.	18	18	18	19	20	21	22
Length of cut . . . inches	11	9½	8	7¾	7½	6	5½
Length overall . . . inches	47	41	36	34	30	27	24½
Net weight . . . pounds	36	31	22	20	11	9	7
Codeword	Tesko	Tesob	Tespe	Tessh	Tesvu	Tesxa	Tetdu



No. 636 Elbow Bench Shear
(Capacity No. 16 gage)

Elbow Bench Shears are similar to Bench Shears described above. They can, however, be used for straight as well as curved or irregular cuts in general sheet metal work. They are called Elbow Bench Shears because they are sometimes used for cutting large elbow sections of heavy sheet metal. The jaws are straight with inner faces sloped back. This provides clearance when cutting curves or changing the direction of cut.

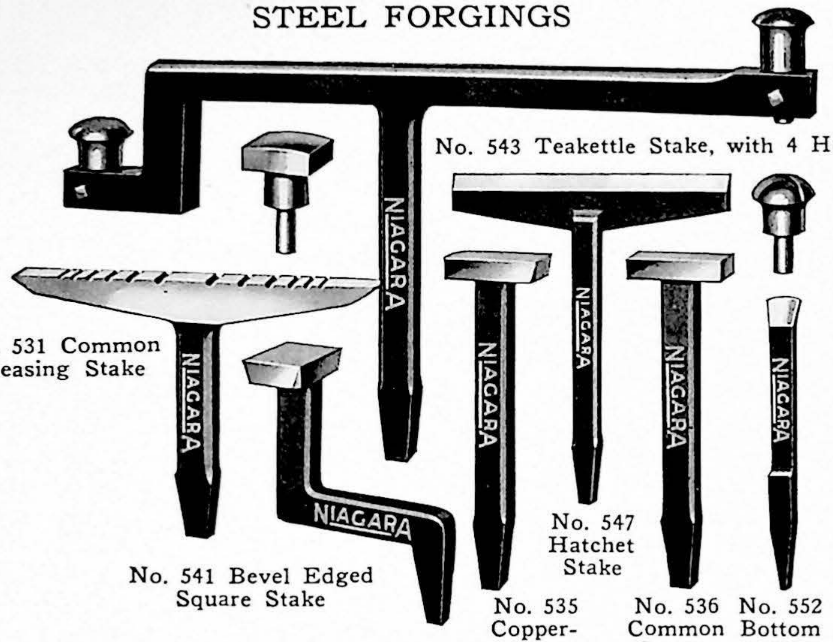
Handles and jaws are forged of steel. Tool steel cutting edges are welded to the jaws, hardened and ground. Lower shank is made to fit a bench plate (page 9). When so held shear can be operated with one hand while the other hand guides the work. Shank on the upper handle determines closed position of shear and prevents the fingers of the operator from being pinched.

NIAGARA ELBOW BENCH SHEARS

Number	635	636	637
Old number	A	B	C
Capacity, mild steel . . . Gage No.	18	16	14
Length of cut . . . inches	4¾	6¼	7½
Length overall . . . inches	26	33½	44½
Net weight . . . pounds	10	17	33
Codeword	Tetfa	Tetov	Tetri

STAKES

STEEL FORGINGS



No. 543 Teakettle Stake, with 4 Heads

No. 531 Common Creasing Stake

No. 541 Bevel Edged Square Stake

No. 547 Hatchet Stake

No. 535 Coppersmiths Square Stake

No. 536 Common Square Stake

No. 552 Bottom Stake

Stakes are the anvils of the sheet metal worker. With hammer, mallet, grooving tool and rivet set, all types of sheet metal operations may be performed on stakes such as tube forming, taper forming, flanging, side and circular seaming, box and kettle seaming, riveting, etc. The good mechanic regards stakes as essential equipment.

The skilled sheet metal worker resorts to a stake whenever a suitable machine is not available, and he easily overcomes with stakes many problems for which machines are not readily adaptable.

All Niagara Steel Stakes are clean cut, smooth, sharp and polished forgings. They have the quality which is necessary to satisfy. Hardened tool steel faces are furnished on some styles. Shanks fit in tinner's bench plates. (Page 9.)

Teakettle Stake. For seaming vessels of the teakettle type. Has four interchangeable heads.

Common Creasing Stake. Employed in certain turning, wiring and beading requirements. Hardened tool steel faces.

Hatchet Stake. For making straight, sharp bends, folding and edge bending. Hardened tool steel edge.

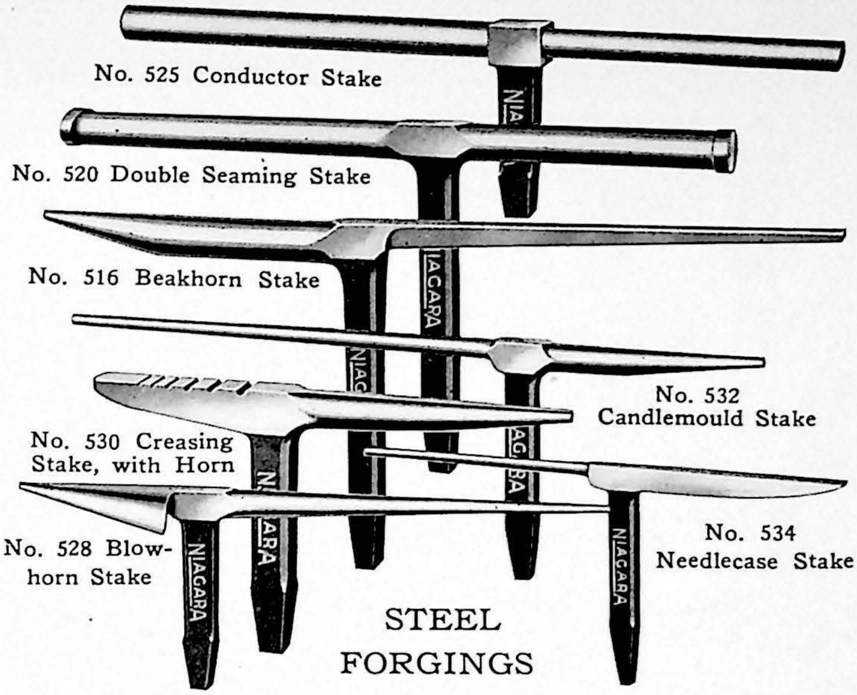
NIAGARA STEEL FORGED STAKES

Number	**531***	**535**	**536**	**537**	**538**	**540**	**541**
Name	Common Creasing	Copper-smiths Square	Common Square	Large Square	Small Square	Bevel Edge Large	Square Small
Size work face . . . inches	14½x1 9/16	2½ x 4½	2½ x 4½	3½ x 5½	1½ x 2⅜	3 x 5	2½ x 4½
Net weight . . . pounds	12	11	12	15	3	14	13
Codeword	Teydz	Teyhl	Teyio	Teykv	Teyly	Teymb	Teyne

Number	**543****	**545**	**547**	**548**	**552**	**554**
Name	Teakettle	Hatchet			Bottom	
Old Number		1	3	4	1	3
Size work face . . . inches	4 Heads	16	13	11	1¾ x 3/32	1¼ x ⅛
Net weight . . . pounds	50	11	8	7	3	2
Codeword	Teyop	Teypk	Teyrn	Teytu	Teyux	Teyva

*Has two grooves each of following diameters ⅛, 5/32, 3/16, ¼, 5/16, 11/32 inches.
**Size of heads, inches,2x3, 2¾ dia., 2⅜ dia., 2 9/16 dia. with groove.

STAKES



STEEL FORGINGS

Bottom Stake. For burring or flanging circular bottoms. Hardened tool steel edge.

Square Stakes. General utility flat square anvils. Three sizes—Large, Common, Small. Bevel Edged has offset shank, so large work will clear the bench. Coppersmith's has one end of head rounded. All except small square have hardened steel heads.

Conductor Stakes. Have two cylindrical horns for forming and seaming pipes, and cylindrical pieces.

Double Seaming Stake. Used when laying down bottom seams of vessels.

Beakhorn Stakes. A general purpose anvil for riveting, shaping round and flat surface work, straight bending, corner seam closing, etc.

Candle Mould Stake. Has a round tapering, general purpose horn and a slender horn for tube forming or reshaping.

Creasing Stake. One horn like common creasing stake; other round and tapered for general use.

Needle Case Stake. Round, slender horn for small tubes, heavier horn of rectangular cross section.

Blowhorn Stake. For shaping abrupt tapers on apron, or taper tubes on slender horn.

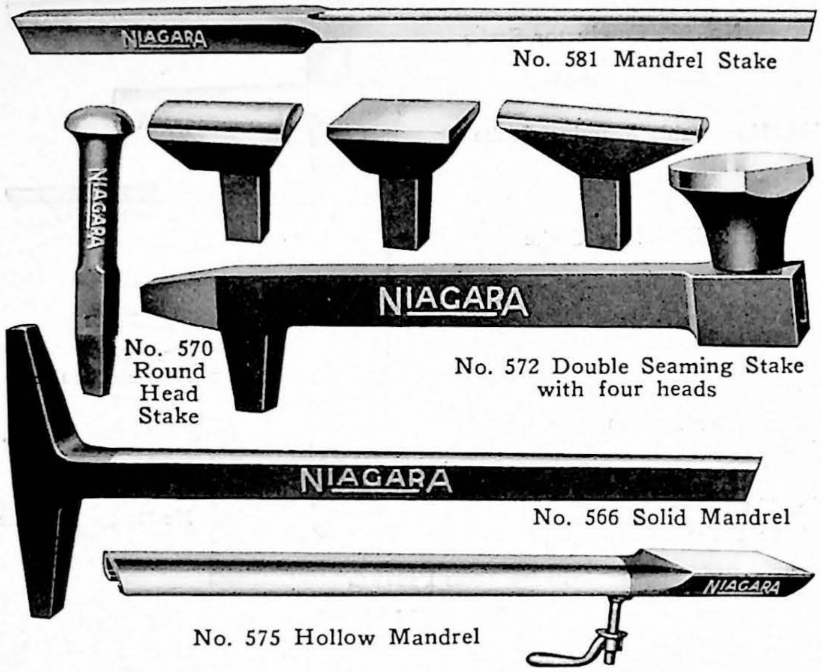
NIAGARA STEEL FORGED STAKES

Number	**516**	**517**	***520**	**525**	****558**	**528**	*****530**	**532**	**534**
Old number	2	4	1	00	1				
Type	Beakhorn		Double Seaming	Conductor		Blow-horn	Creasing with Horn	Candle Mould	Needle Case
Horn lengths.......inches	21½, 16½	19, 14½	17, 12	20, 14	15, 12	18, 9	11½, 6¾	18, 9½	10½, 8
Long horn at shank..inches	2 3/16 x 1⅛□	2 x 1 □	1⅞○	2○	2½○	1½○	1½ ○	⅞○	⅝○
Long horn at end....inches	1 9/16 x ½ □	1¼ x ½ □	1⅞○	2○	2½○	⅜○	⅜ ○	½○	7/16○
Short horn at shank.inches	2 3/16○	2○	1⅞○	1½○	1¼○	4¾ wide	1½ x 1¾□	1⅛○	15/16 x 1 □
Short horn at end...inches	¾○	⅝○	1⅞○	1½○	1¼○	⅜ wide	1½ x ¼□	⅜○	15/16 x ⅛□
Net weight.......pounds	36	28	42	35	28	14	12	8	5
Codeword	Texma	Texog	Texuw	Texyi	Tezaf	Teyah	Teybt	Teyec	Teygi

Horn lengths measured from shanks to ends.
*Double seaming stake has oval ends, inches, 3¼x2 and 2⅞x1⅞.
**Cast iron.
***Has six wire grooves, diameters, inches, ⅛, 5/32, 3/16, ¼, 5/16, 11/32

STAKES

CAST IRON



No. 581 Mandrel Stake

No. 570 Round Head Stake

No. 572 Double Seaming Stake with four heads

No. 566 Solid Mandrel

No. 575 Hollow Mandrel

Mandrels and Stakes illustrated are close grained grey iron that will not mar easily. All working surfaces are ground true, straight and polished. These stakes will give excellent service when used in conjunction with a mallet. Cast iron stakes should never be used for riveting or chiseling if surface marks are objectionable.

Mandrel Stake. Popular for stove pipe seaming. Reversible. Working surfaces on both sides of horn. Must be secured to the bench by U bolts or straps. These are not furnished with the mandrel.

Round Head Stake. Head has rounded working surface. Shank for Bench Plate.

Double Seaming Stake with Four Heads. Employed when double seaming large work. Can be used horizontally as illustrated, or vertically with a head in the end. Two shanks for Bench Plate.

Solid Mandrel. For forming or for operations on cylindrical work. This mandrel is reversible with two working surfaces and two shanks for holding in a Bench Plate.

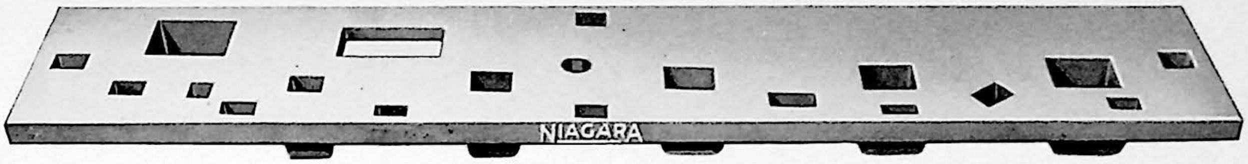
Hollow Mandrel. Popular for pipe forming and seaming. Has also useful square faced working end. Tee slot full length and clamping bolt furnished, give great latitude in fastening stakes to bench.

NIAGARA CAST IRON STAKES

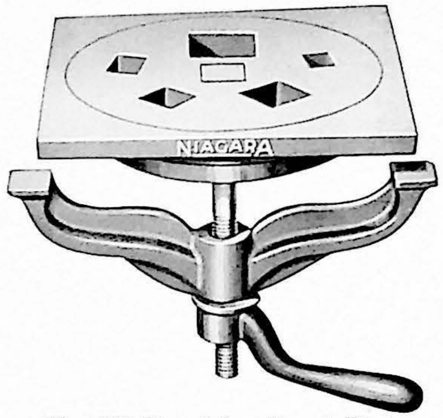
Number	563	565	566	570	572	575	576	681
Old number	0	1	2		**	0	00	12
Type	Solid Mandrel			Round Head	Double Seaming with 4 Heads	Hollow Mandrel		Mandrel
Length overall . . . inches	43¼	36⅞	33⅛	13¼	30¾	41	60	44¾
Head diameter . . . inches				3¼				
Flat side, width and length . . . inches	2⅝ x 40	2½ x 34	2¼ x 30			5½ x 9	6¾ x 10½	2¾ x 17¾
Rounded end radius and length . . . inches	1⅜ x 40	1¼ x 34	1⅛ x 30			2 x 31	2½ x 48	1½ & 3x26
Net Weight . . . pounds	80	60	43	10	112	55	110	55
Codeword	Tezbu	Tezda	Tezes	Tezhm	Teziv	Tezok	Tezro	Tezur

**Head sizes—Round 6″ dia. 4⅜″ high—Square 4¼″x5½,″ height 2½″—Short oval 3⅝″x4″. Length 5⅝″, height 2½″—Long oval 2⅜″x2¾,″ length 8¼,″ height 2½″.

BENCH PLATES



No. 584 Bench Plate



No. 586 Revolving Bench Plate

Bench Plates serve as a rigid mounting for stakes, bench shears, etc.

Niagara Bench Plates are made of close grained cast iron. Cored holes of various sizes are smooth and tapered to fit the stake shanks. Smaller holes are provided for bench shears.

The top of the stationary Bench Plate is planed smooth. Holes are provided for bolting to bench.

Revolving Bench Plate is more compact than the stationary plate. The center portion can be rotated to the desired position and locked by the clamping handle underneath.

NIAGARA BENCH PLATES

Number	583	584	585	586
Old number	0	1	2	Revolving
Type	Stationary			
Length . . . . . . inches	48	37	30	9
Width . . . . . . inches	12	8	8	9
Shipping weight, lbs.	75	54	35	20
Codeword	Tenes	Tengy	Tenie	Tennu

STRAIGHT EDGE

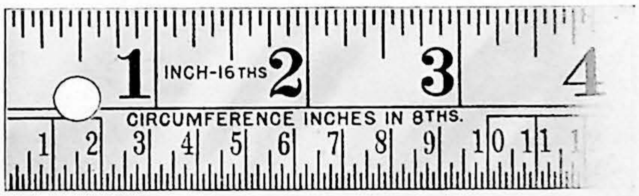
Modern Sheet Metal work demands correct layouts which require dependable layout tools. Straight lines should always be scribed against a reliable steel straight edge. A Niagara Straight Edge starts the job right.

Niagara Straight Edge is made of high carbon hard rolled steel, planed all over to remove surface stresses. Working edge is beveled to a thickness of $\frac{1}{16}$ inch and planed straight.

NIAGARA STRAIGHT EDGE

Number	625
Length . . . . . . feet	8
Thickness, width . . . . . . inches	¼x2¼
Net weight . . . . . . pounds	13
Codeword	Tesew

CIRCUMFERENCE RULE



No. 788 Circumference Rule

An accurate Lufkin rule for use in sheet metal layout work. One edge is graduated in inches. Opposite edge shows the circumferential equivalent.

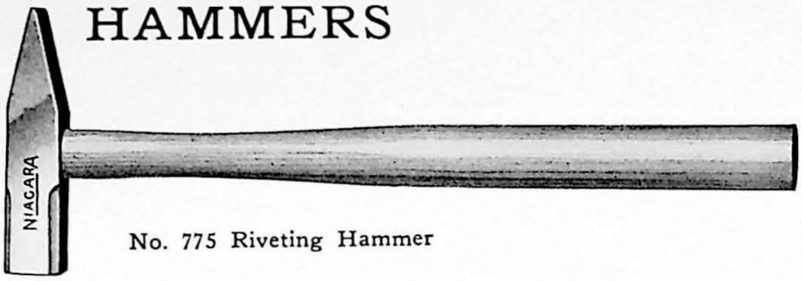
Reverse side gives information regarding sizes of cans, measures and pails of various capacities.

These rules are made of tempered steel finished plain or nickel plated.

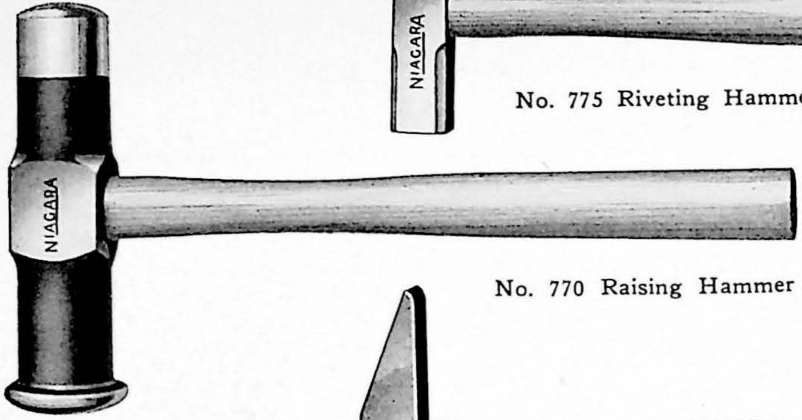
NIAGARA CIRCUMFERENCE RULE

Number	788	789
Type	Plain	Nickeled
Length . . . . . . inches	36	36
Thickness and width . . . . inches	$\frac{1}{16}$x1¼	$\frac{1}{16}$x1¼
Net weight . . . . . . ounces	12	12
Codeword	Teutp	Teuwz

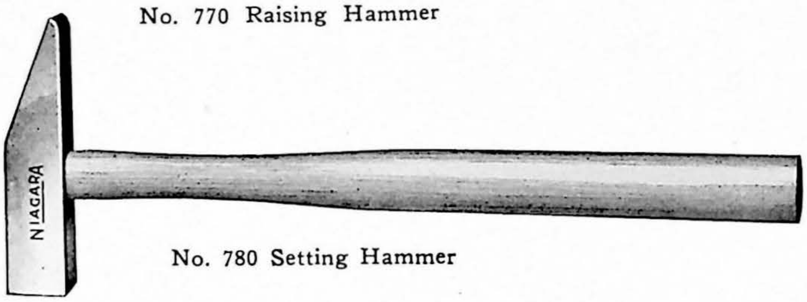
HAMMERS



No. 775 Riveting Hammer



No. 770 Raising Hammer



No. 780 Setting Hammer

RAISING HAMMERS

Produce convex or concave formations in sheet metal by a series of blows. The metal is laid on a concave hardwood block called a raising block. Niagara Raising Hammers are steel with working faces carefully ground and polished. Handles are selected hickory, rounded and smoothly finished. Correct length gives balance in swinging.

RIVETING HAMMERS

The ideal hammer for rivet heading. The tapered end is used for breaking down the rivet end, the opposite face for smoothing and finishing.

Niagara Riveting Hammers have polished steel forged heads, heat treated. The face is octagonal. Handles are hickory, smoothly finished. Heads are secured to handles by steel wedges.

SETTING HAMMERS

Setting Hammers are designed for laying down, clinching, or tucking in edges of sheet metal and have a particular sphere of usefulness in double seaming operations.

Niagara Setting Hammer heads are of forged steel, heat treated and polished. The face is square. Hickory handles are smoothly finished. Heads are secured with steel wedges.

NIAGARA RAISING, RIVETING AND SETTING HAMMERS

Number	770	771	772	773	774	775	776	777	779	780	781	782	783
Old number	1	2	3	4	1	2	3	4	1	2	3	4	5
Type	Raising				Riveting				Setting				
Diameter large face . . . . inches	2¼	2⅛	1¾	1⅜									
Diameter small face . . . . inches	1⅝	1½	1⅜	1⅛									
Size of square face . . . . . inches					1⅛	1	⅞	¾	1⅛	1	⅞	¾	⅝
Net weight . . . . pounds	4¾	3½	2¾	1¾	1¾	1½	1	¾	1¾	1½	1	¾	⅝
Codeword	Thaka	Thald	Thamg	Thanj	Thaom	Thart	Thatz	Thauc	Thawi	Thayo	Theaz	Thebc	Thecf

SCRATCH AWL

No. 769 Scratch Awl

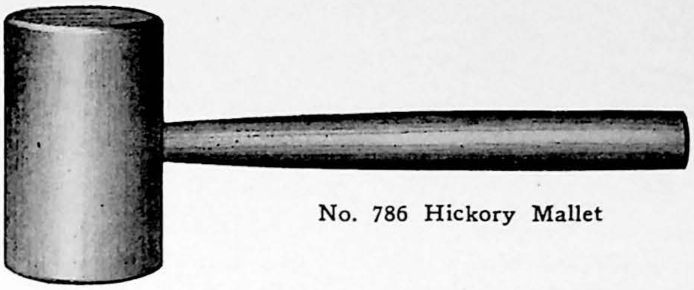
For scribing around templates and marking sheet metal in layout work.

Niagara Scratch Awls are hardened tool steel. The point is ground to a long taper and polished.

NIAGARA SCRATCH AWL

Number	769
Length overall . . . . inches	7¾
Net weight per dozen . . . . pounds	1
Codeword	Teuna

MALLETS



No. 786 Hickory Mallet

Mallets are indispensable to the sheet metal worker, being used where steel hammers would deface the work.

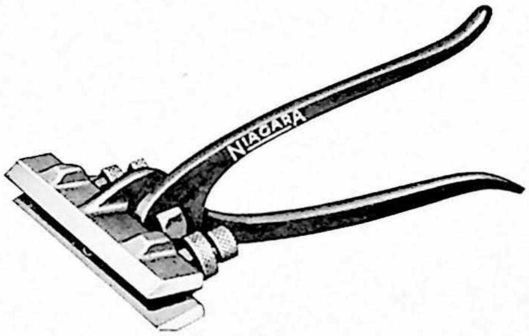
Niagara mallets are made of carefully selected, second growth hickory, wax finished, thoroughly air-seasoned and free from defects.

The smoothly finished handle is proportioned to the head, maintaining correct balance. Head is secured to handle by a special wedge method, which avoids splitting the head. Faces are slightly crowned, with rounded edges.

NIAGARA MALLETS

Number	784	784-A	784-B	784-C	785	786	787
Face diameter.................inches	2	2¼	2½	2¾	3	3½	4
Head length....................inches	5	5¼	5½	5¾	6	6	6
Overall length..................inches	10¾	11	11¼	11½	11¾	14¼	14¾
Net weight per doz.............pounds	7¼	9½	12	14	17½	25½	32
Codeword..............................	Theel	Thefo	Thegs	Thehv	Theiy	Thejb	Theke

HANDY TONGS



No. 792 Handy Tongs

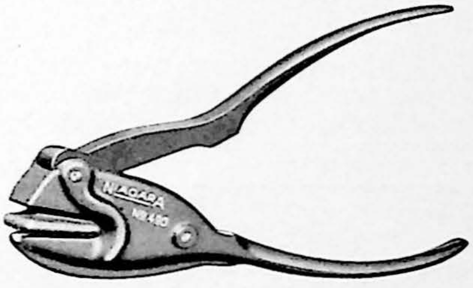
A small general utility tong for bending sheet metal. Useful in the shop as well as for incidental work on the roof

Handles are of convenient length and shape. Jaws are beveled and finished along edge to insure straightness. Knurled screws gage the height of fold. The adjustment may be locked.

NIAGARA HANDY TONGS

Number	792
Capacity, mild steel...........Gage No.	28
Gaging range.....................inches	⅜ to 1⅛
Working length..................inches	6½
Length of handles from pivot......inches	8½
Net weight......................pounds	3
Codeword	Tevat

PIPE CRIMPER



No. 490 Pipe Crimper

A small well constructed tool for contracting the end of sheet metal pipe by crimping. Most useful on erecting jobs where cutting and fitting of pipe makes necessary a portable crimping tool.

The diameter of ends of sheet metal pipe can be increased somewhat, by crimping and then flattening the crimps with a mallet.

NIAGARA PIPE CRIMPER

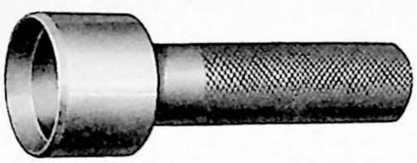
Number	490
Capacity, mild steel..........Gage No.	22
Length of crimp.................inches	1⅛
Net weight.......................pounds	2¼
Codeword..............................	Takti

For Crimping Machines see Bulletin No. 75.

SMALL HAND TOOLS

No. 682 Rivet Set and Header

No. 707 Grooving Tool



No. 732 Hollow Punch

RIVET SETS AND HEADERS

Niagara Rivet Sets are well proportioned to the rivet to be headed. They are ~~forged of~~ tool steel, heat treated. The top is tough to withstand hammer blows and the bottom hard so the hole which punches the metal and draws it to the rivet head, stays sharp. The rounded depression forms a nicely shaped head.

Number	**680**	**681**	**682**	**683**	**684**	**685**	**686**	**687**	**688**	**689**
Old number	00	0	1	2	3	4	5	6	7	8
Size of hole	5/16	9/32	¼	7/32	3/16	11/64	5/32	9/64	⅛	7/64
For iron rivets . . . pounds	14	10&12	8	6	4&5	2½&3	1¾&2	1½	1¼	10&12 oz.
Net weight . . . ounces	14	14	10	10	8	8	4	4	4	4
Codeword	Thelh	Themk	Theor	Thepu	Therx	Thesa	Theug	Thevj	Thewm	Thexp

GROOVING TOOLS

Used for flattening and offsetting folded edges to make a lock seam. Width of seam is determined by width of fold and width of groove in tool. Niagara Grooving Tools are drop forgings of tool steel properly hardened. Groove and working surface are accurately milled.

Number	**705**	**706**	**707**	**708**	**709**	**710**	**711**	**712**	**713**	**714**
Old number	00	0	1	2	3	4	5	6	7	8
Size of groove . . . inches	½	7/16	⅜	5/16	¼	7/32	3/16	5/32	9/64	⅛
Net weight . . . ounces	18	18	18	14	14	14	10	10	10	10
Codeword	Tehyt	Thiad	Thiep	Thift	Thihz	Thiki	Thimo	Thins	Thion	Thipy

HOLLOW PUNCHES

For punching round holes in light sheet metal. Made of tool steel, scientifically hardened. The shank is lathe turned and knurled to facilitate gripping. Cutting edge is beveled and ground to give sharpness and durability. Hollow punches should be used against a slab of lead.

Number	**718**	**719**	**720**	**721**	**722**	**723**	**724**	**725**	**726**	**727**	**728**
Diameter . . . inches	¼	⅜	½	⅝	¾	⅞	1	1⅛	1¼	1⅜	1½
Net weight . . . ounces	2	4	6	9	10	11	14	16	18	20	22
Codeword	Thirb	Thise	Thith	Thiuk	Thixu	Thiyx	Thiza	Thlag	Thlet	Thlif	Thloy

Number	**729**	**730**	**731**	**732**	**733**	**734**	**735**	**736**	**737**	**738**	**739**	**740**
Diameter . . . inches	1⅝	1¾	1⅞	2	2⅛	2¼	2⅜	2½	2⅝	2¾	2⅞	3
Net weight . . . pounds	1½	2	2¼	2½	3	3¼	3½	4	4½	4¾	5¼	5½
Codeword	Thlun	Thlya	Thoaj	Thobm	Thocp	Thodt	Thoew	Thofz	Thohf	Thojl	Thoko	Thols

No. 748 Solid Punch

No. 756 Prick Punch

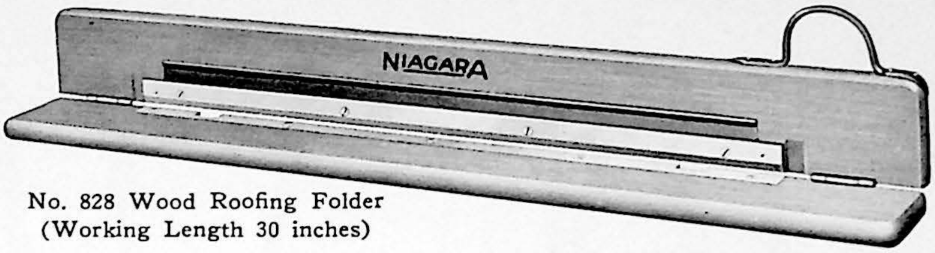
SOLID PUNCHES

Solid Punches. Punch small holes in light sheets. Metal should be backed up with end grain hardwood, or a lead slab.

Prick Punches are used in layout work. Niagara Solid and Prick Punches are hardened, tool steel, with ground ends.

Number	**745**	**746**	**747**	**748**	**749**	**750**	**751**	**752**	**753**	**756**
Old number	0	1	2	3	4	5	6	7	8	—
Type	Solid Punch									Prick Punch
Size of hole . . . inches	9/32	¼	7/32	3/16	11/64	5/32	9/64	⅛	7/64	—
Net weight per dozen . . . pounds	1¾	1¾	1¾	1¾	1	1	1	1	1	1¼
Codeword	Thomv	Thony	Thoob	Thope	Thorh	Thosk	Thour	Thovu	Thowx	Thoxa

WOOD ROOFING FOLDER



No. 828 Wood Roofing Folder
(Working Length 30 inches)

A portable folder for folding the four edges of light roofing tin so that edges can be hooked and flattened to form a lock seam. The steel folding blades are fastened to wood frames made of selected clear white wood.

The blades ~~have~~ recesses for clearing edges previously folded on the two adjacent sides.

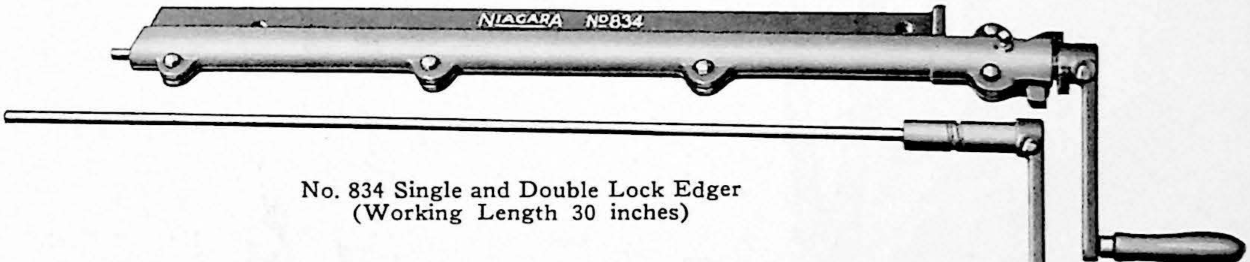
Common Roofing Folder makes folds 5⁄16 inch wide.

Improved Roofing Folder has an adjustable gage.

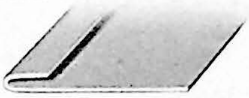
NIAGARA WOOD ROOFING FOLDER

Number	826	828
Type	Common	Improved
Capacity, mild steel . . . Gage No.	30	30
Width of locks . . . inches	5⁄16	3⁄16 to 3⁄8
Length of fold . . . inches	28	30
Shipping weight . . . pounds	12	15
Codeword	Teuge	Teuod

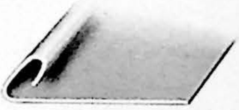
SINGLE AND DOUBLE LOCK EDGER



No. 834 Single and Double Lock Edger
(Working Length 30 inches)



Single Fold



Double Fold

A rapid machine for making single or double folds on roofing tin. The edge of the tin is inserted in a slot in the rod through the opening in the cylindrical housing. One turn of the handle produces the double fold. When making a single fold, a stop limits the motion of the crankhandle to a half turn. The finished work is slid off the rod through the open end of the housing.

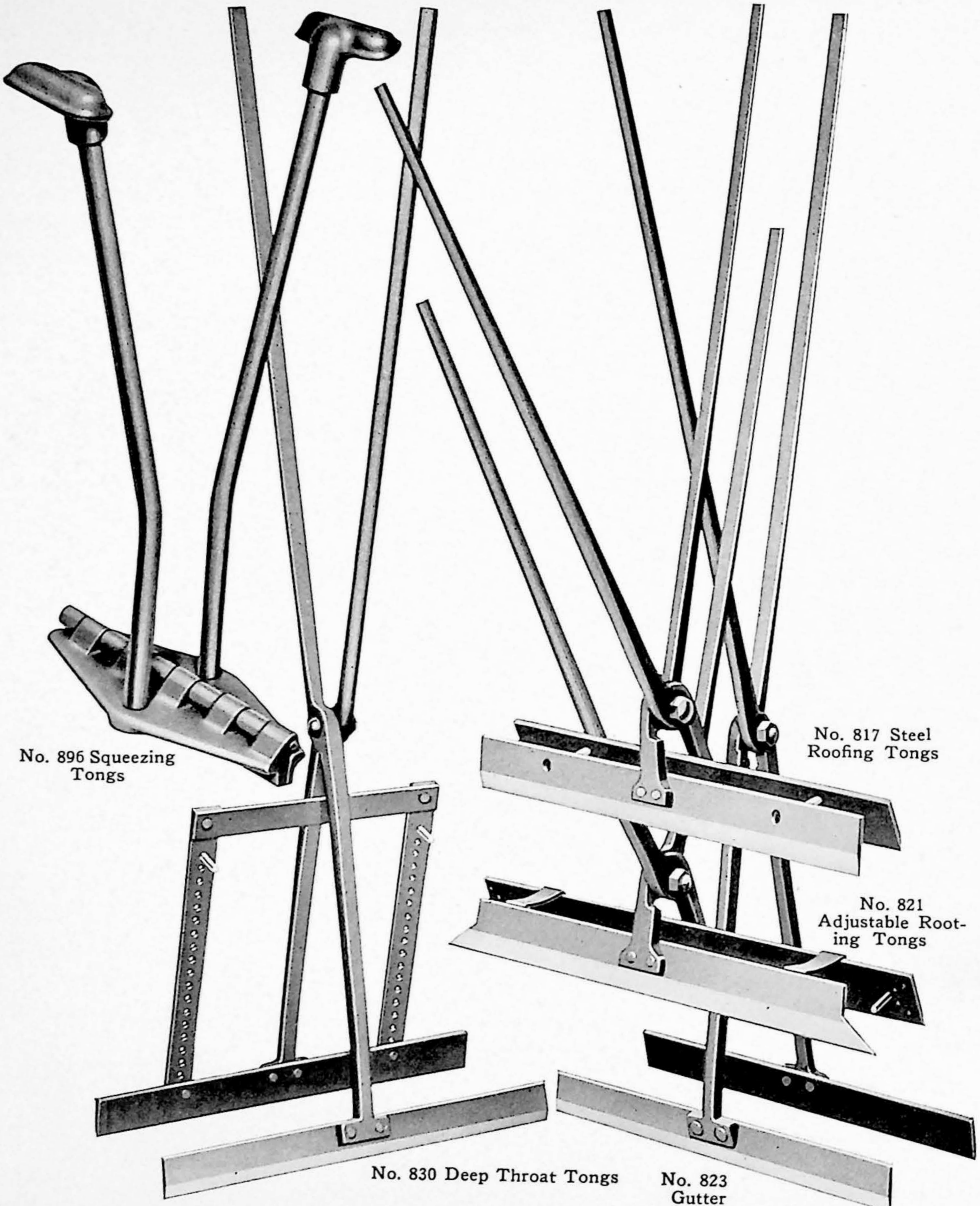
The machine will also form gutter beads using the ½ inch gutter rod regularly furnished.

NIAGARA SINGLE AND DOUBLE LOCK EDGER

Number	~~715~~ 854
Length of locks . . . inches	30
Capacity, mild steel . . . Gage No.	30
Width of single locks . . . inches	5⁄16
Width of double locks . . . inches	3⁄8
Diameter of gutter rod . . . inches	½
Shipping weight . . . pounds	45
Codeword	Tevip

Power operated machine can be furnished for making single and double folds.

ROOFING TONGS



No. 896 Squeezing Tongs

No. 817 Steel Roofing Tongs

No. 821 Adjustable Rooting Tongs

No. 830 Deep Throat Tongs

No. 823 Gutter Tongs

SHEET METAL ROOFING

Sheet Metal Roofing covers a wide range of types such as flat, standing seam, roll and cap, V crimped, etc., of tin, galvanized iron and copper. Some of these types are prepared on the roof and some are shipped more or less prepared for laying. There are also cornices, gutters, valleys, flashings, etc., of sheet metal.

In the application of these roofs, there are bending operations, cutting, notching, soldering, cleating, nailing and seaming.

Standing seam roofing for pitched roofs is a universally recognized type, either common gage or wide gage. The heights of these finished standing seams are ¾" and 1" respectively. According to original methods, the edges of tin plate were bent with a folder, joined to form a strip and coiled into a roll by a cross lock seamer before being taken to the roof. For common gage the edges of the rolled roofing were bent up to right angles on the roof to widths of 1" and 1¼" respectively, wide gage 1¼" to 1½" respectively. The strips are laid side by side and suitably cleated. The wider edge is doubled down with seaming tools over the adjacent narrower edge of the next strip and the three thicknesses similarly doubled over once more to complete the seam.

ROOFING TONGS

Roofing Tongs are used for bending edges, for seaming, or for miscellaneous folding and bending operations on the roof. They are light and strong. With the exception of the Squeezing Tongs, the handles are forgings and the blades are tough special beveled spring steel.

Steel Roofing Tongs. This type tong is most universally used. It is not adjustable but has gages for specific widths of folds. Gage pins are riveted in the blade. Usually furnished in pairs for 1¼ and 1½ inch folds as required for common gage standing seams, or for 1¼ and 1¾ folds for wide gage.

Adjustable Roofing Tongs. These tongs are for bending an edge ½, ¾, 1, 1¼, 1½ or 2 inches wide. The two pin gages can be screwed into a series of tapped holes in one of the blades. The hole spacings give a gaging range from ½ to 1½ inches. A two inch fold is obtained by gaging against two fixed gages with the gage pins removed.

Gutter Tongs. Used for making wide bends for gutter formation, etc. These Tongs have no gage. Bend is made along a marked or scribed line.

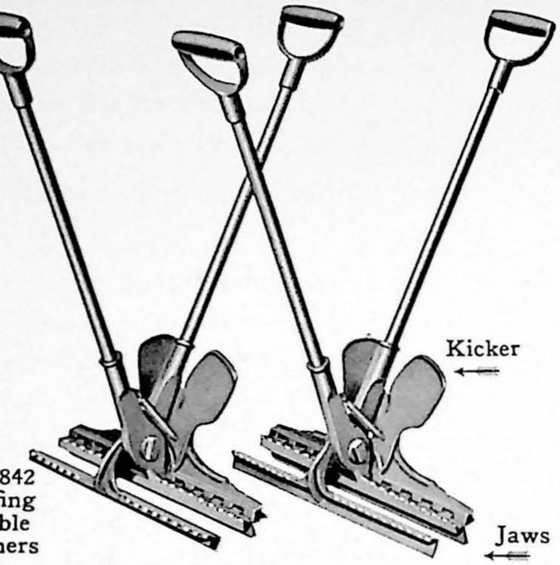
Deep Throat Tongs. Suitable for wide folds and gutter formations. Width of folds from 1½ to 10 inches can be gaged in half inch increments. Two threaded gage pins screw into tapped holes in the gage bars to give the desired width of fold.

Squeezing Tongs. Used for capped roofing. More rapid for the closing operation than Hand Roofing Seamers and Mallets. Jaws are cast iron, straight on the inside and hinged together. Hinge pin runs full length of jaws. Handles are of pipe for lightness and strength with conveniently shaped grips. Spreading the handles apart closes the jaws. Long leverage reduces effort required for operation.

NIAGARA ROOFING TONGS

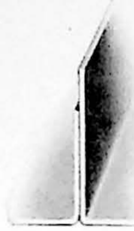
Number	815	816	817	818	819	821	823	830	846
Type	Steel Roofing					Adjustable	Gutter	Deep Throat	Squeezing
Length of blades.........inches	18	18	18	18	18	18	14	15	11½
Suitable for edges........inches	½	1	1¼	1½	1¾	½, ¾, 1 1¼, 1½, 2	0—14	½—10	1
Net weight, each........pounds	8	8	8	8	8	9	9	11	15
Codeword....................	Thral	Threy	Thrik	Throd	Thrut	Teubo	Teucs	Teusm	Tevwa

ROOFING DOUBLE SEAMERS



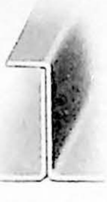
No. 842 Roofing Double Seamers

(Burritt Type)



1

Preparation for Standing Seam



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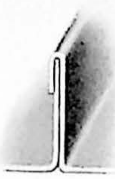

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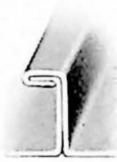

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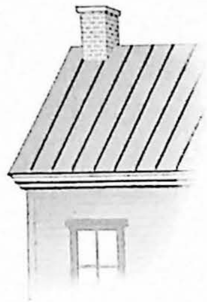
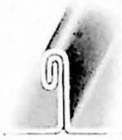




5

Finished Standing Seam

BURRITT TYPE

Rapid hand and foot operated tools for completing a standing double seam after adjacent edges of roofing sheets have been bent up.

Figure 1, shows the edges of the roofing sheets prepared, ready for seaming.

Two seamers constituting a set are required to finish a seam. Figure 2 shows the right angle bend made by the jaws and Figure 3 the edge bent down by the "kicker" of Seamer No. 1. Figures 4 and 5 show the corresponding work performed by Seamer No. 2.

These Seamers are made in two sizes for common gage seams (finished height ¾ inch) and wide gage seams (finished height 1 inch). See page 15.

Number	842-1	842-2	843-1	843-2
Type	Common		Wide	
Operation	1st & 2nd	3rd & 4th	1st & 2nd	3rd & 4th
Length of blades....inches	14	14	14	14
Width of prepared roof edges....inches	1" & 1¼"	1" & 1¼"	1¼" & 1½"	1¼" & 1½"
Height of finished seam....inches	¾	¾	1	1
Shipping weight of each....pounds	22	22	22	22
Codeword	Thuab	Thubs	Thucv	Thudy

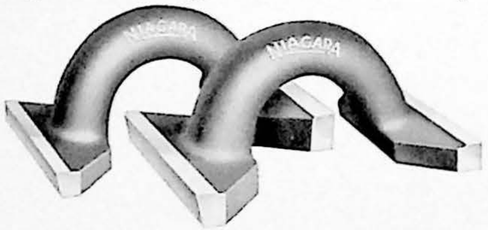
For I. C. tin. Can be furnished to special order at extra charge for IX tin or No. 26-28 gage galvanized iron.

HAND TYPE

Hand seamers finish standing seams after adjacent edges of roofing sheets have been properly prepared, Figure 1. These tools back up the metal, actual bending being done with a mallet.

Two seamers comprise a set. Low side of first tool is used in making bend, Figure 2, high side for the flattening operation, Figure 3. The second tool similarly used finishes the seam, Figures 4 and 5.

One tool with working sides of correct height for bends, Figures 2 and 4, will sometimes suffice,—the high side being used for flattening operations, Figures 3 and 5.



Nos. 836 and 837 Roofing Double Seamers
(Hand Type)

Number	835	836	837	838	839
Width of prepared roof edges....inches	¾ & 1	1 & 1¼	1¼ & 1½	1½ & 1¾	1¾ & 2
Height of seam....inches	½	¾	1	1¼	1½
Height of working sides....inches	½ & ¾	¾ & 1	1 & 1¼	1¼ & 1½	1½ & 1¾
Length of working sides, approx....inches	6	6	6	6	6
Net weight, each....pounds	6½	7	8½	9¼	11½
Codeword	Thuer	Thufe	Thugh	Thuhk	Thuid

No. 836 and 837 used for common gage seam. No. 837 and 838 used for wide gage seam.

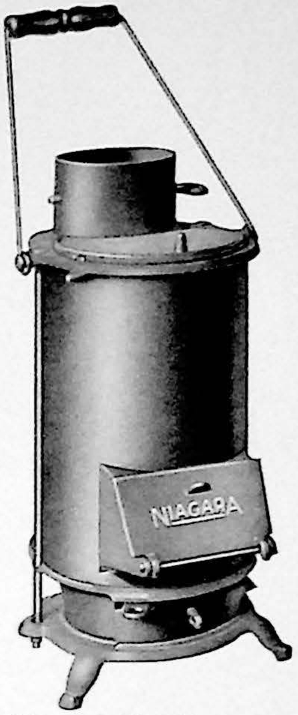
FIRE POT

Charcoal Fire Pots for heating soldering coppers are still prominent in service on the job. They are unequaled in wind and weather, on the roof or in buildings under construction. They are light in weight, economical in fuel and most efficient heaters.

The fire pot is of the double flue type, one flue for direct upward draft until the fuel is glowing. This flue is then closed. The damper in the reduced draft flue is then opened which changes the direction of draft to concentrate the hottest combustion in the space occupied by the coppers. The amount of draft is controlled by the ash pit door. Ashes are dropped by a circular shaking grate.

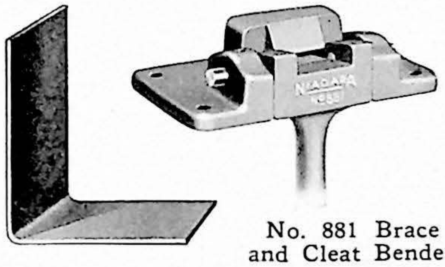
The body is of sheet metal. Crown and base are of cast iron which best withstands heat. The hinged door of the hearth when open provides a shelf for the coppers to rest upon. A bail or handle is furnished for carrying the fire pot.

Number	791
Height overall not including handle .... inches	16½
Size of opening for soldering coppers .... inches	3¾x2¼
Diameter of grate .... inches	5⅜
Shipping weight .... pounds	18
Codeword	Teuzi

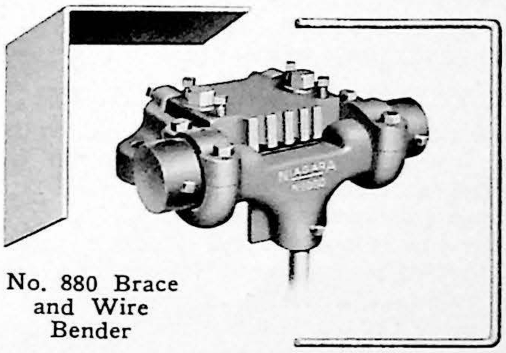


No. 791 Fire Pot

BENDING MACHINES



No. 881 Brace and Cleat Bender



No. 880 Brace and Wire Bender

BRACE AND CLEAT BENDER

For bending heavy strip stock. Useful in making braces for gutters, cornices, leaders, etc. Handy for bending up heavy angle braces.

Strip to be bent is inserted through the opening under the lug. The bending bar is raised by the lever handle. If thin stock is bent, a piece of metal to take up the excess space under the lug should be inserted.

Heavily constructed. Holes are provided for fastening to work bench. Not intended for sharp bends.

Number	881
Maximum thickness and width can be bent, mild steel .... inches	¼x2
Minimum included angle of bend..degrees	90
Shipping weight................ pounds	35
Codeword............................	Tlous

BRACE AND WIRE BENDER

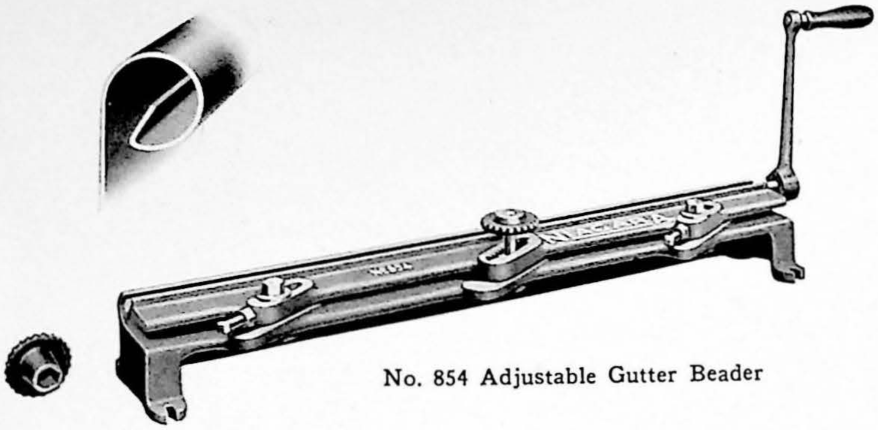
A device for bending jobs so often attempted in folders and brakes with damaging results. Adjustable to make sharp or rounded bends in light or heavy strip stock and wire.

The material is inserted under the bending plate. The bending bar is raised by a hand lever which may be inserted in either of two end sockets or in the center.

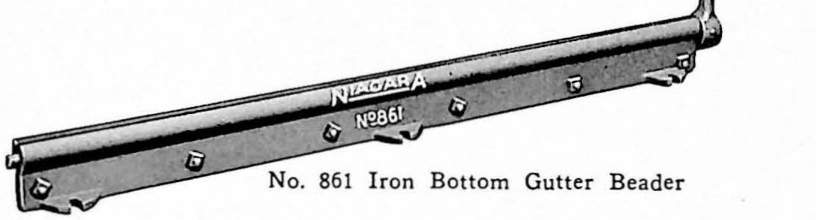
The bending plate is reversible for flat or wire bending. Has screw adjustment for thickness of material or radius of bend.

Number	880
Maximum thickness and width can be bent, mild steel .... inches	¼x3½
Minimum included angle of bend..degrees	90
Grooves for wire, diameter........inches	
Shipping weight .... pounds	80
Codeword..............................	Tloto

GUTTER BEADERS



No. 854 Adjustable Gutter Beader



No. 861 Iron Bottom Gutter Beader

Gutter beaders employ a slotted rod, around which sheet metal is coiled or wrapped to produce a curl with an interior lip, known as a gutter bead. The edge of the sheet is inserted in the milled slot of the rod, which is enclosed in a suitable housing. The rod is rotated by a crank to produce the bead.

Gutter Beads provide a type of finished edge or re-enforcing, used not only on gutters and spacers for gutters, but on many sheet metal articles such as flower boxes, tote boxes, farm watering troughs, signs, top mountings for large maps, etc.

ADJUSTABLE GUTTER BEADERS

The characteristic features of Adjustable Gutter Beaders are jaws which open to facilitate removal of work and provision for the accommodation of rods of different diameters.

The movable jaw is opened and closed by hand-wheel pinion and rack, and is locked in closed position by two hand wheel actuated screws.

To assure a return of the jaw to the correct closed position for uniformity of repititional work, stop screws with lock nuts are provided.

Light work may be slid out of the jaws without opening them.

IRON BOTTOM GUTTER BEADER

A simple, non-adjustable Gutter Beader built for one size rod only which should be specified on the order. The jaws and frame are a rigid assembly consisting of two similar halves bolted together. Lugs are provided for fastening to the bench.

After the bead or curl has been produced by rotating the rod, the work or both rod and work are slid out endwise from between the jaws.

NIAGARA GUTTER BEADERS

Number	854	855	856	861
Type	Adjustable			Iron Bottom
Working length . . . inches	30	42	48	30
*Jaws for one size rod only, diameter . . . inches				3/8, 1/2 or 5/8
**Jaws adjustable for rods, diameter . . . inches	3/8 to 3/4	3/8 to 3/4	3/8 to 3/4	
Capacity, mild steel, with 3/8" diameter rod . . . Gage No.	26	28	28	28
Capacity, mild steel, with 1/2" diameter rod . . . Gage No.	26	26	26	26
Capacity, mild steel, with 5/8" diameter rod . . . Gage No.	24	26	26	24
Capacity, mild steel, with 3/4" diameter rod . . . Gage No.		24	24	
Shipping weight . . . pounds	60	110	120	25
Codeword	Tewpi	Tewso	Tewts	Tlisf

*Unless otherwise ordered 1/2" rod will be furnished.

**Rod 1/2" diameter regularly furnished but rods 3/8", 5/8" or 3/4" in diameter can be supplied from stock, and substituted at no extra charge.

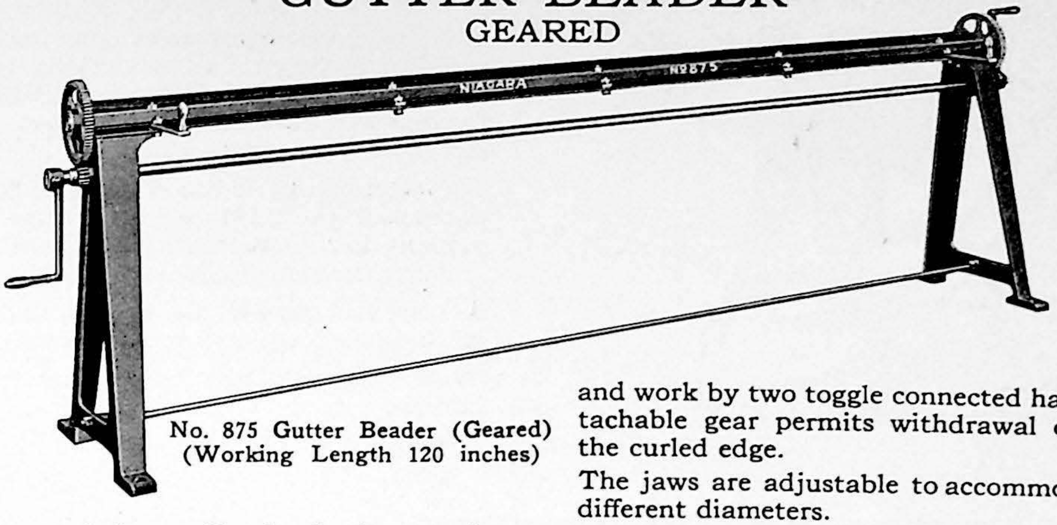
Special diameter rods furnished at extra charge.

Rods on No. 855 and No. 856 Gutter Beaders have handle at each end.

The 3/8" rod has slot 1/32" wide, 3/16" deep; all other sizes, slot is 3/64" wide, 1/4" deep.

GUTTER BEADER

GEARED



No. 875 Gutter Beader (Geared)
(Working Length 120 inches)

A hand operated Gutter Beader for long work.

The slotted Beading Rod in which the edge of the sheet is inserted rotates between two jaws. When the edge of the metal has been curled or beaded, the movable jaw is opened for removal of rod and work by two toggle connected handles. A detachable gear permits withdrawal of rod from the curled edge.

The jaws are adjustable to accommodate rods of different diameters.

The jaws and frame are of steel. The toggle mechanism for opening the jaws is self locking and instantaneous in operation. The beading rods are gear driven at both ends to minimize deflection of rod and to assure a uniform bead.

NIAGARA GUTTER BEADER (Geared)

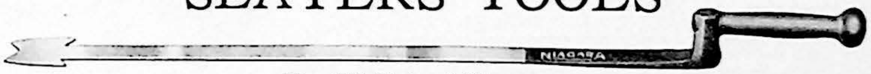
Number		859
Working length	feet	10
*Jaws adjustable for rods, diameter	inches	⅝-1
Capacity, mild steel, with ⅝″ rod	Gage No.	24
Capacity, mild steel, with ¾″ rod	Gage No.	22
Shipping weight	pounds	560
Codeword		Tlopf

*Unless otherwise ordered ⅝″ rod furnished.

Rods ¾″ or 1″ diameter can be substituted at no extra charge. Special diameters furnished at extra charge.

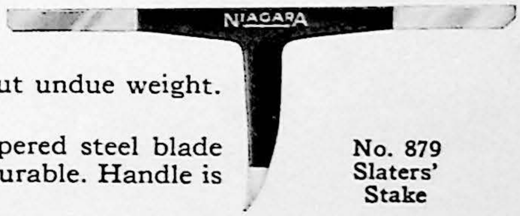
All rods have slots 3/64″ wide, ¼″ deep. Heavier gage material can be beaded if edge is previously folded in a brake.

SLATERS' TOOLS



No. 877 Slaters' Ripper

No. 878
Slaters'
Hammer



No. 879
Slaters'
Stake

These tools are used for laying and repairing slate and asbestos shingle roofs. They have the necessary strength without undue weight. Made for the workman who wants good tools.

Slaters' Ripper—A high grade tool with tempered steel blade drawn thin. Nail cutting edges are sharp and durable. Handle is forged from tough steel.

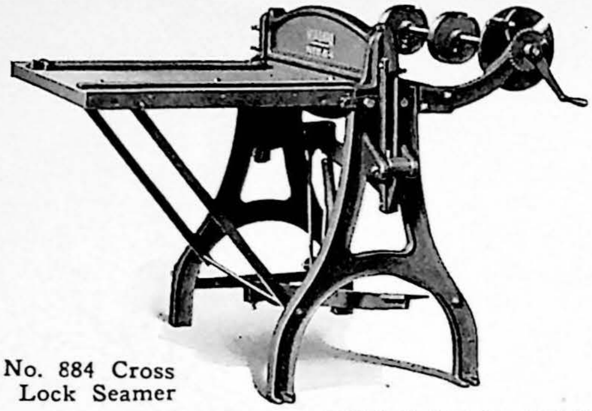
Slaters' Hammer—Solid forging of crucible steel. Head, point and cutting edges are properly tempered, ground and polished. It has a laminated leather handle that will neither break nor wear out, nor will it slip or blister the hand.

Slaters' Stake—Forged from steel, heat treated. Blade is straight and corners square. Leg is tapered to a curved point, smooth and sharp for driving into roof boards.

NIAGARA SLATERS' TOOLS

Number		877	878	879
Name		Ripper	Hammer	Stake
Length of blade or head	inches	24½	9	18
Net weight	pounds	3¼	1¾	3
Codeword		Tlowy	Tlove	Tlubt

CROSS LOCK SEAMERS



No. 884 Cross Lock Seamer

This machine compresses previously folded edges of roofing tin after hooking together to make single or double lock seams. A hand reel in the rear winds the joined sheets into a roll commonly known as "Roll Roofing".

The extension table has side gages. Spring gage pins locate the sheets correctly under the compressing bar. Compressing bars exert powerful pressure through toggle links.

Ratchet and pawl on reel prevent material from unwinding. Completed rolls are easily removed.

Power operated Cross Lock Seamer can also be furnished.

NIAGARA CROSS LOCK SEAMER

Number	884
Working length . . . inches	30
Capacity, mild steel . . . Gage No.	26
Gage adjustment—width . . . inches	20 and 28
Shipping weight . . . pounds	600
Codeword	Tlutu

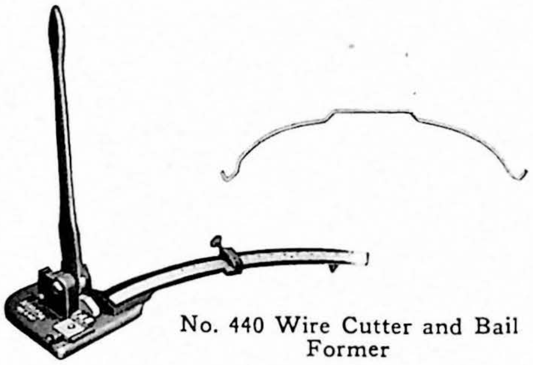
WIRE CUTTER AND BAIL FORMER

For cutting coiled wire to predetermined length for making offsets on pail handles and bending hooks on the ends.

The curved gage bracket is graduated and the gage is adjustable thereon. The knives are hardened tool steel.

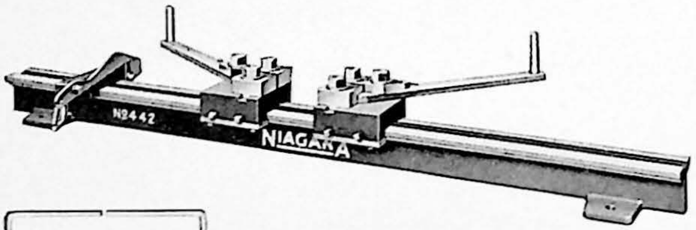
NIAGARA WIRE CUTTER AND BAIL FORMER

Number	440
Gaging range . . . inches	2-60
Capacity, wire diameter . . . inches	¼
Shipping weight . . . pounds	50
Codeword	Tempz



No. 440 Wire Cutter and Bail Former

WIRE FRAME BENDER



No. 442 Wire Frame Bender

Bends the wire frames enclosed in the top edges of sheet metal pans, boxes and similar articles. The wire is laid in position with it's end against gage on the bed and by swinging the two handles, two bends are made.

The movable gage can be locked at any location on bed for gaging end of wire in relation to bends.

The bending units are adjustable to afford the desired distance between bends. The bending blocks may be set for different diameters of wire.

Both the stationary and the turning blocks of the bending units are of hardened tool steel.

NIAGARA WIRE FRAME BENDER

Number	442
Working range . . . inches	6-45
Capacity, wire diameter . . . inches	¼
Shipping weight . . . pounds	135
Codeword	Temti

TERMS

PROPOSALS cover machines and tools of the specified capacity and range, designed, built and prepared for domestic shipment in accordance with our standard practice at the time of sale, and unless otherwise specified for the usual operations with good commercial accuracy. *Illustrations* are fair representations but are not binding in detail. *Weights* are merely approximate domestic shipping weights. *Capacities* are based on the use of commercial grade soft steel and gages referred to are the United States Standard Gage of Sheet Steel. *Production Figures* are estimates only based on the possibility of the machines when operated under proper conditions by competent operators but necessarily varying according to the ability of the operator.

QUOTATIONS are for immediate acceptance and are subject to change without notice. Approximate prices are merely expressions of our opinion and are not a limiting factor in any degree.

DELIVERY f.o.b. Buffalo, N. Y. All cost incidental to the erection of the machinery in purchaser's plant shall be borne by the purchaser.

TERMS OF PAYMENT—Net cash thirty days after date of shipment or after the date that shipment is tendered, subject to credit approval. Foreign terms according to conditions.

ESTIMATED DATE OF SHIPMENT given is computed from receipt at the factory of all details pertaining to the order essential to its proper execution. Shipment dates are approximate only and we are not responsible for loss or inconvenience caused by delays or non-performance due to strikes or other abnormal manufacturing conditions, fires, embargoes and other causes beyond our reasonable control.

ACCEPTANCE OF ORDERS. All orders whether placed direct or through an agent and all subsequent amendments thereto are subject to a final approval and acceptance by this company. Each item on an order is understood to be a separate order. In the acceptance of an order no unexpressed or undefined liabilities beyond those acknowledged in our guarantee are assumed.

CANCELLATION. Orders accepted by us shall not be subject to cancellation except with our consent and then only upon the following conditions:

Standard Equipment—(Defined as catalogued equipment ordinarily carried in stock.) When cancellation is accepted we reserve the right to make a cancellation charge up to 25% of the purchase price.

Special Equipment—(Defined as equipment manufactured for special requirements and not stocked as standard product.) Cancellation will be accepted upon payment of a percentage of the total special equipment price equal to the percentage of total work completed, including drawings, patterns and special tool equipment costs, provided, however, that such drawings, patterns and equipment shall be retained in our possession.

MATERIAL FOR TESTING. All material other than ordinary unfabricated common sheet steel required for testing and adjusting machinery and equipment ordered shall be furnished by the purchaser and shall be correct for the operation to be performed.

EXTRAS. Amendments made by the purchaser to orders already placed shall, without formal notice to the purchaser, be subject to extra charges.

GUARANTEE. We guarantee each unit of machinery and equipment to fulfill our representations and to be free from defective material and workmanship for a period of six months from delivery when given normal and proper usage and when owned by the original purchaser. Claims that machinery or equipment do not fulfill our representations must be made within two weeks after arrival and the use discontinued pending substantiation of claim. We reserve the right to either make necessary corrections, or at our option to take back the items involved and cancel the order as to them, without assuming further obligations. We do not assume any obligation for unauthorized alterations on tools, machines and parts furnished by us. During the guarantee period parts found defective by our inspection will be replaced free of charge f.o.b. our factory.

SERVICE CHARGE. Should service in the nature of the erection, demonstration or repairing of any machine offered in this proposal be requested beyond that specifically mentioned as included in the quoted price, such service will be rendered at a standard rate per day plus transportation and living expenses.

These terms and conditions of sale shall apply in all cases and there are no understandings or agreements in modification thereof unless expressed in writing and accepted at the main office of this company.

How to Secure Information About NIAGARA Machines

To prevent confusion and needless bulk of description, Niagara Machines have been separated into natural groups according to use, size, or capacity. A detailed description and tabulation of each of the different groups is given in separate bulletins.

Send for the bulletin which covers the type or capacity of the machine you are interested in, or if the bulletins listed do not seem to cover your requirements, write us the nature of the work to be performed and our engineers will make suggestions and forward detailed information.

POWER PRESSES AND PUNCHES

Bulletin	
No. 58	Inclinable Presses, Open Back
No. 59	Power Bench Press
No. 60	Horn Presses—Side-Seamers
No. 61	Punching Presses
No. 62	Arch Presses
No. 63	Single Crank Presses, Trimming Presses

Bulletin	
No. 64	Double Crank Presses, Four-piece Tie-Rod Frame
No. 65	Double Crank Presses, One-piece Frame
No. 66	Double Action Presses
No. 67	Power Punches, Single, Multiple, etc.
No. 68	Foot Operated Presses

POWER SQUARING SHEARS

Bulletin	
No. 71	Power Squaring Shears, Light Gage
No. 72	Power Squaring Shears, Medium Gage
No. 73	Power Squaring Shears, Heavy Gage

POWER ROTARY SHEARS

Bulletin	
No. 70	Power Circle Shears
No. 70	Power Ring Shears
No. 70	Power Circle Shears & Flangers

MACHINES AND TOOLS FOR GENERAL SHEET METAL FABRICATING

HAND, FOOT OR POWER OPERATED.

Bulletin	
No. 74	Folders—Brakes
No. 75	Rotary Machines Burring Crimping Turning Flanging Wiring Corrugating Edging Forming and Beading Curving Combination Machines Setting Down Machines
No. 76	Groovers — Seamers

Bulletin	
No. 77	Slip Roll Formers
No. 78	Snips — Hand Tools Stakes — Roofing Tools
No. 79	Lever Shears and Punches Notching Slitting Shearing Bar Cutting Punching Rod Cutting
No. 80	Shears, Squaring and Rotary Foot Squaring Foot Curved Foot Gap Circle, Ring, Slitting

DIES AND SPECIAL EQUIPMENT

Many years of close contact with the Press and Die industry has given us a wide knowledge and experience in correct die design. Niagara dies combine economical production with reliable service.

We can build machines for special or unusual operations in sheet metal fabricating. Inquiries should give complete details.

NIAGARA MACHINE & TOOL WORKS

ESTABLISHED 1879

BUFFALO, N. Y., U. S. A.